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United Typothetae of America

Standard Cost-finding System

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United Typothetae of America Standard Cost-Finding System

Principles and General Information regarding the use of the Standard Cost-Finding System

together with

A list of Operations in the Various Departments of the Printing Business, classified to show the Productive and Non-Productive Items

Prepared by

Committee on Education

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608 South Dearborn Street
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UNITED TYPOTHETAE OF AMERICA
STANDARD COST FINDING SYSTEM

PRINCIPLES

The Standard Cost Finding System is a method of cost finding made standard by the adoption, at the International Cost Congress in 1909 and endorsed by each succeeding convention of the United Typothetae of America, of a set of principles upon which the system is based. The system is primarily for the use of printers, and through its installation and operation they are enabled to ascertain the cost of an hour's work in the various departments, the cost of each piece of work produced, and the cost of all the factors entering into the production of printing. These principles are as follows:

1. PRODUCTIVE HOUR METHOD—For the purpose of arriving at the cost of production of printing the standard unit of production in the various departments shall be the Productive Hour. Where the labor is hand the productive man hour is the unit. Where the machine is the producing factor the productive machine hour is the unit.

2. STANDARD HOUR COST—The standard hour cost shall be the gross cost exclusive of stock handling and selling, namely, direct labor plus all overhead expense, departmental, and office or general commercial.

3. COST PER CHARGEABLE HOUR—This is found by dividing the total cost of the department, including pro-rated general commercial expense, by the number of productive, or chargeable, hours in that department.

4. DEPARTMENTALIZATION — The business shall be divided into departments, each department being a natural division of the processes of manufacture. Also, each department may be subdivided as much as desired.

5. NORMAL COSTS—The costs shall be ascertained monthly, and by months added together until a period sufficiently long has elapsed to obtain a true average cost covering varying conditions. The correct basis is the average for the preceding twelve months. To ascertain this average yearly cost each month, drop the month farthest back and add the last month.

6. DEPARTMENTAL OVERHEAD EXPENSE —This expense shall be distributed to the departments which incur it.

7. SHIPPING AND DELIVERIES—This expense shall be kept as a separate department and absorbed through General Commercial Expense.

8. STOCK HANDLING—Stock Handling shall be kept as a separate department, and the total expense charged as a percentage against the cost of materials used.

9. SELLING—The Selling Expense shall be kept as a separate account and the total expense charged as a percentage to the cost of Completed Work.

10. GENERAL FACTORY OVERHEAD EXPENSE—The sum of this expense shall be distributed over the factory departments on a percentage basis of the total departments' direct expense, including pay roll.

11. GENERAL COMMERCIAL OVERHEAD EXPENSE—The sum of this expense shall be distributed over the various departments on a percentage basis of the total factory cost of departments, including pay roll.

12. DEPRECIATION—The original cost of a machine, its equipment and installation, and also of furniture, fixtures, and type, is to be taken as the basis for depreciation. This expense for wear and obsolescence is distributed over the departmental equipment on an estimated life of ten years for machines, furniture, and fixtures (10 per cent per annum), and of four years for type faces (25 per cent per annum). On machine composition metal the depreciation is the cost of the shrinkage through melting. Repairs and maintenance shall be considered as separate items of expense and shall not be included in depreciation. In case of extensive replacements, which substantially prolong the life of a machine, the cost therefor shall be charged against the Allowance for Depreciation account.

13. INTEREST ON PLANT INVESTMENT—Interest at the legal rate shall be charged on the total plant investment, and shall be distributed according to the investment in each department. Interest on materials on hand shall be included in the Stock Handling Expense.

14. RENTAL ON REAL ESTATE OWNED—When buildings are owned and occupied by individuals, firms, or corporations, suitable rental shall be charged to the various departments and the amount of such rental credited to real estate income.

15. MONOTYPE COMPOSITION—For the purpose of arriving at the hour cost of Monotype Composition the Key Board and Caster shall be kept as separate departments.

DIVISION OF EXPENSES

The distribution of expense over the different departments on the Summary of Department Costs for the Month is made on the following basis:

FIXED CHARGES—These are composed of such items as Rent, Insurance, Taxes, Depreciation, and Interest on Plant Investment.

1. RENT—The basis of distribution is the used square feet. The total used square feet divided into the total rent charge gives the charge per used square foot. This result, multiplied by the department's used area, gives the departmental rent expense.

2. INSURANCE—This should be distributed on the basis of the value of the departmental equipment. Insurance on materials on hand shall be included in Stock Handling Expense. Boiler insurance is a charge to Power. Liability and compensation insurance is a charge to General Factory Expense.

3. TAXES—Taxes should be distributed on the same basis as Insurance. Income Tax is a charge against Profit and Loss and is not a part of Production Cost.

4. DEPRECIATION—The original cost of a machine, its equipment and installation, and also of furniture, fixtures, and type, is to be taken as the basis for depreciation. This expense for wear and obsolescence is distributed over the departmental equipment on an estimated life of ten years for machines, furniture, and fixtures (10 per cent per annum), and of four years for type faces (25 per cent per annum).

5. INTEREST ON PLANT INVESTMENT—Interest at the legal rate shall be charged on the total plant investment, and be distributed according to the value in each department. (In preparing the annual Loss and Gain statement this interest on plant investment shall be returned to income).

CURRENT EXPENSES—These expenses consist of such items as wages, light, heat (when not included in rent), power, spoilage, departmental direct supplies and expense, machine metal waste, (gas, for Trade Composition Houses), and type making for Hand Composition department.

1. WAGES—Each department shall be charged for all the wages it incurs.

2. LIGHT—Light is distributed according to the consumption in each department. (This expense is pro-rated on the basis of the used candle power in each department.)

3. POWER—Power is distributed according to the consumption in each department. (This expense is distributed on the basis of horse power hours. The horse power hour cost is found by multiplying the horse power of the motor on each machine by its actual running hours and dividing this amount into the charge for power.)

4. SPOILAGE—Spoiled or defective work should be charged to a reserve for spoilage. The provision to be adequate should be a percentage of the departmental cost and should be made a direct expense to the department, or may be absorbed through General Factory Expense.

5. DEPARTMENTAL DIRECT SUPPLIES AND EXPENSE—All such items of expense incurred for any particular department shall be charged directly to that department.

6. MACHINE METAL WASTE—On machine composition metal the depreciation is the cost of the shrinkage through melting. Two per cent on linotype metal and three per cent on monotype metal of the value of the metal melted each month has been found to be a fair estimate.

GENERAL FACTORY EXPENSE—This is composed of factory expenses which cannot be allocated directly to any department. It includes the salary of superintendent, wages of watchmen, and cost of general factory supplies, etc., and is distributed on a percentage ratio to the total departments direct expense.

GENERAL COMMERCIAL EXPENSE—This includes salaries, general expense, office expense, bad debts, and shipping and deliveries.

1. SALARIES—Charge this account with all administrative, managerial and clerical salaries.

2. GENERAL EXPENSE—Charge this account with all general commercial expenses, not under other classified headings.

3. OFFICE EXPENSE—Charge this account with office supplies, stationery, postage, miscellaneous expenses, etc.

4. BAD DEBTS—Uncollectible accounts should be charged to an Allowance for Bad Debts. This monthly allowance (say, for illustration, one-half of one per cent of sales) should be absorbed through General Commercial Expense.

5. SHIPPING AND DELIVERIES—This expense shall be kept as a separate account and absorbed through General Commercial Expense.

SELLING EXPENSES—These are composed of Selling and Advertising.

1. SELLING EXPENSE—This account is charged for salaries, commissions, traveling and expenses of the sales force.

2. ADVERTISING—This account is charged with all expenses of advertising.

TOTAL SELLING—Under this heading is included salaries, commissions, traveling and miscellaneous expenses of the sales force, advertising, miscellaneous expenses, and the fixed charges where a sales department space is occupied. The total selling expense becomes a percentage of the Cost of Completed Work.

TOTAL STOCK HANDLING—This expense is made up of pay roll, miscellaneous supplies and expense, and a proportion of the fixed charges. The total expense of handling materials becomes a percentage of the cost of materials used.*

TOTAL SHIPPING AND DELIVERIES—This expense is composed of out freight and express, pay roll, miscellaneous supplies and expense, and a proportion of the fixed charges. The total is absorbed through General Commercial Expense.

TOTAL GENERAL COMMERCIAL EXPENSE—Under this heading is included administrative, managerial and clerical salaries, general expenses, office expenses and fixed charges, shipping and deliveries, Reserve for Bad Debts, and is prorated on the basis of a percentage of Factory Cost of Departments.

TYPE MAKING FOR HAND COMPOSITION DEPARTMENT—This expense consists of the time consumed in casting sorts, display types, quads, spaces, rules, borders, and other materials cast on type and slug casting machines. This should be added to the total expense of the hand composition department, and deducted from the total expense of the caster, or machine composition slug casting department, after the distribution of General Commercial Expense.

RECOMMENDATIONS

SUPERINTENDENT—The general Superintendent's salary is charged to General Factory Expense.

FOREMAN—The wages of a foreman is charged to the departments supervised on the basis of the department's total pay roll hours.

FOREMAN'S PRODUCTIVE TIME—Whenever a foreman or other executive performs productive work his time shall be charged to the order at the regular rate per hour of that department. The expense of this time shall be charged to the department pay roll at his regular rate.

APPRENTICES—Apprentice hours, both productive and non-productive, are handled in the same manner as those of journeymen.

PERCENTAGE OF PRODUCTIVE TIME—That ratio of the actual producing hours to the total hours paid for (man hours), or total possible hours, exclusive of overtime (machine).

SELLING EXPENSE—No selling charge shall be made on work produced for the various departments, nor upon manufactured (or finished) stock until such manufactured stock is actually sold.

*To be omitted by Trade Composition Houses.

MISCELLANEOUS ITEMS—Interest and Discount transactions are financial and do not enter into the costs. Donations and Charity items are chargeable directly to Loss and Gain. Organization dues are chargeable to current expense.

INK—In press work, ink should be charged as a special item, and not included in the cost per hour.

PERPETUAL INVENTORY—As a requisite for determining costs, the use of an efficient perpetual materials inventory, kept on stock cards or sheets to show at all times the exact amount of materials on hand, is necessary.

APPRAISALS—Experience has demonstrated that plant inventories by Appraisal Companies have proven most satisfactory.

UNUSED MACHINERY—When a machine is not used for a long period of time, such machine should not be considered a part of the operating equipment, but should be carried on the books in an Unused Machinery account. Such fixed expenses as are incurred shall be absorbed through General Factory Expense.

IDLE MACHINERY—Where an essential machine or machines are idle intermittently for periods of time, the fixed charges thereof shall be prorated during such idleness to the operating departments through the General Factory Expense.

MECHANICAL RECORDING DEVICES—In order to insure greater accuracy in making the time charges to individual orders, the use of mechanical time recording devices is recommended.

SPECIAL MACHINES—Where special machines are installed for specific purposes, it is recommended that separate hour costs be obtained. Where a stripped monotype caster (which is employed for casting rules and material) is used, a separate cost should also be obtained.

CASTING SORTS—For the purpose of arriving at the percentage of productive time in the Caster Department, the hours spent in casting materials for the Hand Composition Department are considered as chargeable time. However, in arriving at the actual hour cost of the Caster Department for the month, the hours spent in doing work for the Hand Composition Room are deducted from the total chargeable hours of the department, and the remaining chargeable hours are divided into the total cost of the Caster Department exclusive of the cost of casting sorts. This gives the hour cost for the month, which, when averaged with the preceding eleven months, gives the hour cost to be used for the Caster Department. This method charges the Hand Composing Room for the actual cost of casting sorts and deducts this cost from the total expense of the Caster Department.

PROOFREADING—Proofreading is a composition expense and the wages paid proofreaders and

copyholders should be added to the composition pay roll. When proofreaders read for both the hand and machine departments the wages are distributed between the two departments on the basis of comparative production (say, for illustration, four-fifths to machines and one-fifth to the hand department).

PROOFREADING AS A SEPARATE DEPARTMENT—In plants doing mathematical, scientific, and other intricate composition requiring an abnormal amount of proofreading, it is recommended that proofreading be made a separate department, with separate time ticket, and a direct charge made therefor. The proofreader's hour to include copyholding, and other proofreading expense.

SEPARATE HAND COMPOSITION DEPARTMENTS—In Hand Composition Departments where one set of employees use Machine Type and another set of employees use Foundry Type, each with separate equipment, it is suggested there should be separate departments of Costs, "Composition Handling Foundry Type" and "Composition Handling Machine Cast Type."

It is also suggested that the same procedure be followed where there are separate Book and Job Composition Departments.

COST RECONCILIATION ON SUMMARY OF DEPARTMENT COSTS FOR MONTH.

Form 9-H

To provide a simple means of proving the accuracy of the set-up (used) cost for the month, a method of Cost Reconciliation is shown. It is used as follows:

To the total actual cost of each department for the month is added the opening Inventory. From the sum so obtained is deducted the closing Inventory. This is the actual cost of work done in each department for the month.

These departmental costs, compared with the total of the set-up (used) costs as summarized from the Individual Job Summaries for work done during the month, will show whether the actual costs of the month have been absorbed by the orders of the month. A similar summary should be obtained for each preceding twelve months' period.

DEPARTMENTS OF COST*

For the purpose of determining costs in the printing business, the following essential departments, or cost centers, have been provided:

*With Trade Composition Houses, the departments of cost will be such as apply to the business.

In plants of such size that one set of men under one foreman work on machine composition Make-up and Corrections, and another set of men under another foreman do the regular work of a hand composition department, then there should be two separate departments of costs, "Machine Composition Make-up" and "Hand Composition." Where the Trade Composition House has special machines other than listed above, such as Ludlow, Thompson, Universal, etc., then the hour costs of these machines should be found.

COMPOSITION—HAND WORK.

MACHINE COMPOSITION—SLUG CASTING MACHINE.

MONOTYPE KEY BOARD.

MONOTYPE CASTER.

PLATEN PRESS—10x15 and smaller.

PLATEN PRESS—larger than 10x15.

PLATEN PRESS MECHANICAL FEED—10x15 and smaller.

PLATEN PRESS MECHANICAL FEED—larger than 10x15.

AUTOMATIC PRESS.

PONY CYLINDER—smaller than 25x38.

MEDIUM CYLINDER—25x38 to 38x50.

CYLINDER—Larger than 50 in.

CYLINDER MECHANICAL FEED—50 in. or smaller.

CYLINDER MECHANICAL FEED—larger than 50 in.

CYLINDER TWO COLOR.

ROTARY PRESS—SHEET FEED.

ROTARY PRESS—WEB.

CUTTING.

MACHINE FOLDER—Hand feed.

MACHINE FOLDER—Mechanical feed.

SIGNATURE SEWING MACHINE.

AUTOMATIC POWER STITCHER.

RULING.

BINDERY—A (Men's hand machines).

BINDERY—B (Men's hand work).

BINDERY—C (Girls' small power machines).

BINDERY—D (Girls' hand work).

Where the printing office has special machines other than listed above, then their own cost should be found.

STANDARD COST FORMS

The Standard Set comprises 20 different forms. Such of them as applies to departments not in use will of course be omitted. Those suitable for the average printing office are as follows:

INSTRUCTION ENVELOPE—NO. 1.*

INDIVIDUAL ORDER SUMMARY—NO. 2.*

COMPOSITION DAILY HAND WORK REPORT—NO. 3.

MACHINE COMPOSITION (SLUG CASTING MACHINE) DAILY REPORT—NO. 4.

MONOTYPE KEY BOARD DAILY REPORT—NO. 5.

MONOTYPE CASTER DAILY RECORD—NO. 6.

PRESS DAILY RECORD—NO. 7.

CUTTER DAILY REPORT—NO. 8.

FOLDING MACHINE DAILY RECORD—NO. 9.

RULING MACHINE DAILY RECORD—NO. 10.

BINDERY DAILY HAND REPORT—NO. 11.

COMBINATION DAILY TIME REPORT—NO. 12.

EMPLOYEE'S DAILY PAY ROLL FOR TIME WORKED ON MACHINES—NO. 13.

WEEKLY PAY ROLL SHEET—NO. 14.

MONTHLY INDIVIDUAL PAY ROLL RECORD—NO. 15.

MONTHLY REPORT OF HAND DEPARTMENTS—NO. 16.

MONTHLY RECORD OF MACHINE DEPARTMENTS—NO. 17.

SUMMARY OF DEPARTMENT COSTS FOR MONTH—NO. 9-H.

YEARLY RECORD OF COSTS AND PRODUCTION—NO. 18.

PERPETUAL STOCK INVENTORY RECORD—NO. 19.

*For Trade Composition Houses Forms Nos. 1 and 2, while the same in principle as used by general printing plants, are somewhat different in form to meet the necessities of the business. The forms are numbered 1 T.C. and 2 T.C. respectively.

INSTRUCTION ENVELOPE—Form No. 1*

For purely physical reasons the use of an envelope form of Order Ticket is advocated. By the use of an envelope, which should be made out when the order is entered in the Order Book (see Form G, Standard Accounting System), the loss or misplacement of copy is minimized; into the envelope is put all copy, proof sheets and any written instructions concerning the order, also a copy of the completed order. This plan insures a complete history of the order, and is valuable for future reference.

On the face of the envelope is space for full and complete instructions to each department of the plant, and it should never be necessary for an employee of a given department to look elsewhere for his instructions than in that space allotted to his own department. It should be the rule to fill out each instruction envelope so complete in details that no question need be asked from start to finish of the order.

The Instruction Envelope accompanies the order through the various processes, and after the order is completed the order ticket has fulfilled its immediate functions and then becomes a part of the office records for possible future reference. The Instruction Envelopes are numbered consecutively.

After the Instruction Envelope is properly made out, an Individual Order Summary (Form 2) is also made out and given the same number.

INDIVIDUAL ORDER SUMMARY—Form No. 2*

This form is kept in a loose leaf binder, the successive leaves being according to number. Incidentally, as the Time Reports (Forms 3-12 inclusive) elsewhere explained, come in for entry each day, the act of entering them serves as an order tracer and readily shows in which department any given order was when the daily time was reported.

This form will be the most referred to of any of the system, as it contains the accumulated time expended and materials used as the incompleted orders progress. A close scrutiny of this form will show where and how records are kept by means of Forms 3-12 inclusive, the time taken on each operation of the order, together with the cost of both labor and material to date. The aggregate cost of all incompleted orders is the value of the inventory of "Work in Process." When the order is completed, the cost computed and the order charged to the customer, then the sheet should be taken out of the binder and suitably filed; by removing the completed sheets from day to day as work is finished, there are left only the live or uncharged orders which are still in process.

The columns headed "Cost to Post" and "Sell to Post" are to be used only when interlocked with the financial books (see U.T.A. Standard Accounting System).

*For Trade Composition Houses Forms Nos. 1 and 2, while the same in principle as used by general printing plants, are somewhat different in form to meet the necessities of the business. The forms are numbered Nos. 1 T.C. and 2 T.C. respectively.

DAILY REPORTS AND RECORDS

While there are several separate daily time tickets, the only difference is the variation in columns to fit more closely into the needs of the different physical conditions in the several departments. The time tickets as shown are practically self-explanatory.

Each employee is required to keep a record of the total hours employed. It is essential that care be taken in filling out these time tickets, for the report shows not only the time spent upon individual orders but also a record of the factory production. Where the labor is hand, the productive man hour is the unit; where the machine is the producing factor the productive machine hour is the unit.

On the back of each time ticket is listed the different operations peculiar to the department in which it is used, each being given a symbol number. The employee makes use of these symbol numbers by writing them in the "Kind of Work" column, opposite each order number on which he reports time. The columns to the right of time finished column are for office use only. The operations listed on the back of the daily reports and records are divided to show which are chargeable and which are non-chargeable, making it very easy to divide the time on the ticket under the proper headings and in turn to carry same to Weekly Pay Roll Sheet (Form 14), and Monthly Individual Pay Roll Record (Form 15). The chargeable time is also entered against the order, under the proper department heading on the Individual Order Summary (Form 2). Care should be used in designating the chargeable and non-chargeable time as much depends upon the clear distinction between these two operations.

COMPOSITION DAILY HAND WORK REPORT—Form No. 3

This report which is used by the compositors is self explanatory and needs no further comment.

MACHINE COMPOSITION (Slug Casting Machine) DAILY REPORT—Form No. 4

This form is substantially the same as the Composition Daily Hand Work Report (Form 3) excepting that in addition to reporting time on customers' or stock orders, there should be reported as well the time casting borders, rules and other materials for the composing room. In casting Composing Room Materials a monthly order should be made out and the time employed in casting these materials is productive to the Slug Casting Machine.

METAL ACCOUNT—The metal used for ordinary machine composition does not leave the plant, and returns to the machine composition (slug casting) department for remelting, therefore, it will not be necessary to make a metal charge between different departments for such metal.

MONOTYPE KEY BOARD AND CASTER

The Key Board and Caster should be treated as two separate machines and the unit of time in each case is the machine hour, the wages being carried to the department pay roll. In ascertaining the cost of Monotype work, the actual time of Key Board should be taken at its hour rate and that of the Caster at its hour rate, and both charged to the order as productive time.

MONOTYPE KEY BOARD DAILY REPORT—Form No. 5

This form is self-explanatory.

MONOTYPE CASTER DAILY RECORD—Form No. 6

When the caster is used for casting sorts, display types, quads, spaces, and the like, the machine time devoted to such work should be considered as productive, and the cost of these materials is a direct Departmental Expense against the hand composition department. A monthly order should be made out and the machine time employed in casting these materials is productive to the Monotype Caster. The Employee's Daily Pay Roll slip (Form 13) should also be turned in by each caster employee.

METAL ACCOUNT—The Metal used for ordinary machine composition does not leave the plant and returns to the machine composition (monotype caster) department for remelting, therefore, it will not be necessary to make a metal charge between different departments for such metal.

PRESS DAILY RECORD—Form No. 7

The press being the factor, a ticket should be turned in for each press instead of each employee. The Employee's Daily Pay Roll slip (Form 13) should also be turned in by each press employee. The time from the press record is entered against the order the same as from the other tickets, and in addition, the delays and idle machine time are reported. This opportunity to disclose the aggregate of lost hours in the press room and to know just what caused the loss, is a very important feature of the Cost Finding System. Should there be too much non-chargeable time, it would show inefficiency, while an excess of machine idle time would reflect against the management.

Where there is hand productive work employed in addition to the machine, then this hand work becomes a press room hand hour cost of its own in that department. This would apply to extra help on make ready, cutting overlays, slip sheeting, removing slip sheets, dusting bronze, etc., each at its proper rate.

In computing the proportion of chargeable or non-chargeable time the full regular operating time is taken as the basis upon which to figure the percentage. Thus, if there are ten cylinder presses,

and the plant is running eight hours a day, there will be eighty possible hours of press time; this is considered 100%.

CUTTER DAILY REPORT—Form No. 8

This form is self-explanatory.

FOLDING MACHINE DAILY RECORD—Form No. 9

This form is self-explanatory.

RULING MACHINE DAILY RECORD—Form No. 10

This form is self-explanatory.

BINDERY DAILY HAND REPORT—Form No. 11

This time ticket comprises three departments of cost in the bindery:

Bindery B—men's hand work.
Bindery C—girls' small machines.
Bindery D—girls' hand work.

The operations listed on the back of the time ticket are quite complete and will be found to cover practically all work that can be done in these departments. Where there are special bindery machines, it will be necessary to have special time tickets to obtain their particular costs.

BINDERY A

Bindery A machines comprise all those bindery hand machines, employing men, and a separate cost should be obtained for this department.

SPECIAL MACHINES

Separate costs should be obtained for all expensive power machines such as Signature Sewing Machine, Automatic Stitcher, Embosser, Rounder and Backer, Case Making, Casing-In, Gathering, Duplex Trimmer, Continuous Trimmer, etc.

COMBINATION DAILY TIME REPORT—Form No. 12

This combined Daily Time Report is to obviate the necessity of using more than one time ticket where an employee works in several departments. In a small shop, the same workman is often required to perform various operations and on this ticket his time is divided according to the character of operation and extended by the Cost Clerk under its respective Department heading. This facilitates the handling of the time reports and there is obtained not only the separation of the hand operations by departments, but also the proper pay roll distribution.

EMPLOYEE'S DAILY PAY ROLL FOR TIME WORKED ON MACHINES—Form No. 13

This form is self-explanatory.

WEEKLY PAY ROLL SHEET—Form No. 14

This form can be used for the disbursing pay roll only or can be divided by departments if desired. The latter is suggested in printing offices where the employees work only in one department; but where employees are transferred to different departments, the monthly individual pay roll record (Form 15) is advised.

MONTHLY INDIVIDUAL PAY ROLL RECORD—Form No. 15

To keep the pay roll is of great importance, and has, perhaps more to do with the accuracy of the entire Cost Finding System than any other blank or form. The pay roll of each department should be kept separately, and the pay roll divisions should compare with the department headings in which costs are ascertained.

This form is devised to meet the needs where an employee is transferred to different departments and shows not only his total hours and wage for the month, but also the hours and wage for each department. This can be used without the weekly pay roll sheet (Form 14) if desired, but is not a good form to pay from.

MONTHLY REPORT OF HAND DEPARTMENTS—Form No. 16

This is a monthly form to record daily chargeable and non-chargeable hours in the different departments and shows the total chargeable and non-chargeable hours in each department. Comparison should be made from month to month and from year to year. Headings must be made for each department.

MONTHLY RECORD OF MACHINE DEPARTMENTS—Form No. 17

This monthly report records the daily production of machines, also their output. From this report is taken the department's total chargeable and non-chargeable time as well as the percentage of productive hours. The average output, and cost per unit of production, can be likewise obtained.

It is of prime importance that the percentage of productive hours be taken monthly from Hand and Machine Departments (Forms 16 and 17). Where the operations are standardized comparison of the percentage of chargeable and non-chargeable time of one plant with that of others is of great value in increasing efficiency.

SUMMARY OF DEPARTMENT COSTS FOR THE MONTH—Form No. 9-H

This form is, in effect, the keystone of the Standard Cost Finding System. On this form is obtained the monthly Statement of Cost that discloses the conditions existing in the business for the period.

The method of making the various entries is explained under "Division of Expenses" on previous pages.

On this form also the Factory Department Hour Costs, exclusive of General Commercial, Stock Handling and Selling Expense are shown. For the purpose of making comparisons of efficiency in the factory it is recommended that these comparisons be made. The analysis of the factory costs should be made only on those items which are under the direct control of the factory management.

It will be found that the results from the summary will vary from month to month; it is important that this variation should be known as well as the reason therefor.

Provision for obtaining the average hour cost for each preceding twelve months is included in this summary. Add together, for each department, all the departmental costs for the preceding twelve months, and divide this sum by the total productive hours of the same department for the same period.

YEARLY RECORD OF COSTS AND PRODUCTION—Form No. 18

This accessory yearly record shows by months per chargeable hour, the Wage Cost, Factory Cost, Commercial Cost, Total Cost and the Average Hour Cost for the preceding twelve months. There is also shown the monthly percentage of productive hours together with statistics of production of the total output with the average product per running hour and the cost per one thousand units.

This is a most valuable sheet and the information contained thereon becomes a barometer by which the efficiency of the department management can be gauged.

PERPETUAL STOCK INVENTORY RECORD Form 19

This is a valuable form for recording stock purchased, received, used, and on hand. A separate sheet should be kept for each kind of stock.

HOW THE SYSTEM OPERATES

Each workman turns in a daily time report (Forms 3 to 13 inclusive) showing the orders on which he has worked, and the kind of work performed. These daily reports should be scrutinized by the foreman before passing them to the Cost Department. These time tickets are checked up with the employee's clock record. The total time, chargeable and non-chargeable, is entered each day on the monthly Report of Hand Departments, (Form 16) and each day likewise, is entered a record of each machine on the Monthly Record of Machine Departments (Form 17).

The cost clerk posts all charges to each Individual Order Summary (Form 2). The time taken on each operation is shown by the employee's daily time tickets (Forms 3 to 13 inclusive). When the order is completed the number of hours expended in each department is totalled and the extension is made at the used cost per hour as determined by

the average cost per hour for the preceding twelve months taken from the Summary of Department Costs for the month (Form 9-H). This will give the total Labor and Overhead cost. The materials used are entered against each order plus their cost of handling which with the total Labor and Overhead will give the "Cost Completed Work." To the latter is added the Selling Expense which gives the total cost of the order. To this total cost should be added the proper proportion of profit.

Under any plan of accurate Cost Finding, the first essential feature is that all Material and Supplies shall be strictly accounted for. A Stores or Stock Department should be kept and issuance of materials should be made by requisition only and a perpetual record of the inventory of the materials on hand carefully kept (Form 19). After a requisition for materials on orders has been made, the materials and amount should be charged against the particular order for which the stock was issued.

The use of efficient mechanical time recording devices is recommended. They insure a more accurate record, and errors, either through the workman's inability or indifference, are avoided.

Nothing has been said concerning the financial records of the users of the Standard Cost Finding System forms herein described, as it has been assumed that suitable bookkeeping records are kept. The correct recording of expense items is positively necessary to the operation of the Cost Finding System.

The adoption of the Standard Accounting System, with which the Standard Cost Finding System is interlocked, is urged, as it proves the costs and makes the system absolutely reliable.

UNITS OF OPERATION

A very complete list of operations has been compiled, though it is not expected that all will be used by any one plant. As many as desirable may be used, depending upon the information desired.

The following list of operations in the printing trade is arranged for the convenience of those using a cost system so that they can all use the same number for the same operation and so that the number will at once identify the operation.

All chargeable operations are in odd numbers and non-chargeable operations in even numbers.

Nos. 1 to 57 indicate Composition Room Hand Work.

Nos. 60 to 74 indicate Machine Composition (Slug Casting Machine).

Nos. 90 to 103 indicate Monotype Key Board.
Nos. 115 to 129 indicate Monotype Caster.
Nos. 145 to 182 indicate Press Department.
Nos. 200 to 208 indicate Cutting Department.
Nos. 225 to 234 indicate Folding Machine.
Nos. 250 to 257 indicate Ruling Machine.
Nos. 275 to 447 indicate Bindery Department.

COMPOSITION—HAND WORK

KIND OF WORK (INDICATE BY NUMBER)

Chargeable Time

1	Hand Composition
3	Hand ad. composition
5	Office corrections—hand composition
7	Office corrections—machine composition
9	Customer's alterations
11	Make-up
13	Press lock-up
15	Foundry lock-up
17	Registering forms
19	Making changes or corrections on press
21	Special proofs for customer
23	Dividing for colors
25	Inserting linotype customer's alterations
27	Collating or assembling linotype matter
29	Collating or assembling monotype matter
31	Cutting linotype slugs
33	Cutting special material for specific jobs
35	Arranging in alphabetical order
37	Preparing index
39	Arranging copy and cuts
41	Mounting cuts
43	Trimming and squaring cuts
45	Caring for live matter
47	Packing and boxing customer's cuts
49	Checking ads
51	Saw Trimmer
53	.....
55	.....
57	.....

Non-Chargeable Time

2	Distribution
4	Relocking forms
6	Changing bad letters or characters on press
8	Changing bad letters
10	Proving galleys
12	Hunting for sorts
14	Hunting for lost pages, electros and cuts
16	Cutting material for general equipment
18	Laying cases
20	.....
22	.....

MACHINE COMPOSITION—SLUG CASTING MACHINE

KIND OF WORK (INDICATE BY NUMBER)

Chargeable Time

61	Slug casting—changing over
63	Slug casting—composition
65	Slug casting—office corrections
67	Slug casting—customer's alterations
69	Slug casting—borders and other material
71	.....
73	.....

Non-Chargeable Time

60 Slug casting—waiting for copy
62 Slug casting—caring for machine
64 Slug casting—cleaning space bands
66 Slug casting—repairs
68 Slug casting—delays through accident
70 Slug casting—idle
72 .....
74 .....

MONOTYPE KEY BOARD

KIND OF WORK (INDICATE BY NUMBER)

Chargeable Time

91 Monotype key board—changing over
93 Monotype key board—composition
95 Monotype key board—office corrections
97 Monotype key board—customer's alterations
99 Monotype key board—sort ribbons
101 .....
103 .....

Non-Chargeable Time

90 Monotype key board—waiting for copy
92 Monotype key board—caring for key board
94 Monotype key board—repairs
96 Monotype key board—delays through accident
98 Monotype key board—idle
100 .....
102 .....

MONOTYPE CASTER

KIND OF WORK (INDICATE BY NUMBER)

Chargeable Time

115 Monotype caster—changing over
117 Monotype caster—composition
119 Monotype caster—office corrections
121 Monotype caster—customer's alterations
123 Monotype caster—casting sorts
125 Monotype caster—casting materials
127 .....
129 .....

Non-Chargeable Time

116 Monotype caster—waiting for copy
118 Monotype caster—caring for machine
120 Monotype caster—delays through accident
122 Monotype caster—repairs
124 Monotype caster—machine idle
126 .....
128 .....

PRESS ROOM

KIND OF WORK (INDICATE BY NUMBER)

Chargeable Time

145 Wash-up account customer
147 Registering
149 Make-ready
151 Running
153 Press changes
155 Pulling press proofs

157 Changes and corrections in forms
159 Waiting for ink to dry on *short* run work and turn
161 Chargeable standing time
163 Bronzing
165 Holding press—customer's order
167 Holding press—account customer's proof
169 Holding press—customer's fault
171 Mixing ink for specific job
173 Changing rollers
175 .....
177 .....
179 .....

Non-Chargeable Time

146 General wash-up
148 Oiling
150 Waiting for O. K.
152 Waiting for form
154 Waiting for stock
156 Waiting for feeder
158 Waiting for ink
160 Changing bad letters
162 Standing time—faulty composition
164 Standing time—faulty imposition
166 Standing time—laying plates wrong
168 Standing time—rollers run down
170 Accidental delays
172 Repairing mechanical feeder
174 Repairing motor
176 Repairs—general
178 Machine idle
180 .....
182 .....

CUTTING MACHINE

KIND OF WORK (INDICATE BY NUMBER)

Chargeable Time

201 Cutting
203 Trimming
205 .....
207 .....

Non-Chargeable Time

200 Changing knives
202 Repairs
204 Idle
206 .....
208 .....

FOLDING MACHINE

KIND OF WORK (INDICATE BY NUMBER)

Chargeable Time

225 Setting machine
227 Running
229 .....
231 .....

Non-Chargeable Time

226 Fixing tapes
228 Repairs
230 Machine idle
232 .....
234 .....

RULING MACHINE

KIND OF WORK (INDICATE BY NUMBER)

Chargeable Time

251 Make-ready—setting pens
253 Running
255 .....
257 .....

Non-Chargeable Time

250 Repairs
252 Machine idle
254 .....
256 .....

BINDERY

KIND OF WORK (INDICATE BY NUMBER)

"B"—Men's Hand Work

Chargeable Time

275 Backing
277 Benching
279 Beveling
281 Canvas cover making
283 Casing-in
285 Check binding
287 Covering
289 Cutting board
291 Cutting cloth—leather
293 Drawing off and fanning strings
295 Edging or marbling
297 Embossing—hand
299 Finishing
301 Forwarding
303 Lining up and head banding
305 Making cases
307 Paring leather
309 Patent back
311 Re-inforcing
313 Rounding books
315 Rounding cases
317 Sawing
319 Smashing
321 Stamping—hand
323 .....
325 .....
327 .....

Non-Chargeable Time

276 Idle
278 .....
280 .....

"C"—Girls' Small Machines

KIND OF WORK (INDICATE BY NUMBER)

Chargeable Time

351 Setting machines
353 Eyeletting
355 Indexing

357 Numbering or paging
359 Perforating
361 Punching
363 Round cornering
365 Sewing—Machine
367 Stitching
369 .....
371 .....
373 .....

Non-Chargeable Time

350 Repairs
352 Idle
354 .....
356 .....

"D"—Girls' Hand Work

Chargeable Time

375 Addressing
377 Caring for jobs in process
379 Check binding
381 Collating
383 Counting
385 Covering
387 Dusting bronze
389 Enclosing in envelopes
391 Extra helper on folder
393 Extra helper on ruling
395 Extra helper on stitcher
397 Folding—hand
399 Gathering
401 Gumming
403 Indexing—hand
405 Inserting
407 Interleaving
409 Jogging
411 Laying on gold
413 Mailing (sacking and routing)
415 Numbering—hand
417 Padding
419 Pasting
421 Sewing—hand
423 Silk or thread stitching
425 Slip sheeting and removing slip sheets
427 Stringing
429 Stripping
431 Taking apart
433 Tipping
435 Tissuing
437 Tying
439 Wrapping—banding
441 .....
443 .....
445 .....
447 .....

Non-Chargeable Time

376 Idle
378 .....
380 .....

FOR NEWSPAPER USE

(Other Than Dailies)

The Standard Cost Finding System may be operated in weekly newspaper plants by using a special Newspaper Individual Order Summary, which has been prepared for this purpose. (Form 2-N.)

Its operation is practically the same as the Standard Individual Order Summary (Form 2) for commercial work. See Page 12 of this Treatise.

Provision for the separation of the Cost of Advertising and the Cost of News has been made, as well as for the Total Cost of the Issue.

Form 9-H N

To the Standard Summary of Department Costs for month (Form 9-H) has been added a column for summarizing the Newspaper Expense, consisting of all newspaper expenses such, for instance, as editorial and news features, circulation and mailing, solicitation and incidentals.

The Principles of the Standard Cost Finding System and the Division of Expenses (pages 3 to 7) are not disturbed. The Total Newspaper Expense becomes a percentage of the Cost of Completed Work (the same as Selling Expense in commercial offices, see pages 4 and 6) and is pro-rated to the cost of Advertising and News on the basis that each bears to the Cost of Completed Work on Form 2-N.

Form 2-N

Direct Items on Form 2-N are divided into Advertising and News. Enter their respective totals as provided thereon.

Enter Pro-rated Items in Itemized Cost column, and pro-rate the total of these items to Advertising and News cost on the basis of running inches of each in the particular issue.

Forms To Be Used

Assuming the plant producing the Newspaper does both Commercial and Newspaper work, the regular Standard Cost Finding Forms will be used with the exception of Form 9-H which will be displaced by Form 9-HN, also the addition of Form 2-N for the Newspaper Cost Summary.

Following are the Forms to be used:

- Instruction Envelope—No. 1
- Individual Order Summary—No. 2
- Newspaper Individual Order Summary—No. 2-N.
- Composition Daily Hand Work Report—No. 3
- Machine Composition (Slug Casting Machine) Daily Report—No. 4
- Press Daily Record—No. 7
- Folding Machine Daily Record—No. 9
- Combination Daily Time Report—No. 12
- Monthly Individual Pay Roll Record—No. 15
- Monthly Report of Hand Departments—No. 16
- Monthly Record of Machine Departments—No. 17
- Summary of Department Costs For Month—No. 9-HN

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